Proposed Amendments to the Commercial Harbor Craft Regulations

Board Hearing

June 24, 2010

California Environmental Protection Agency

Air Resources Board

Overview

- Background
- Proposed Amendments
- Impacts
- Costs and Cost-Effectiveness
- Summary and Recommendation

Current Commercial Harbor Craft Regulations

- Board approved CHC Regulation in November 2007
  - New engine requirements for all vessels
  - In-use engine requirements for ferries, excursion vessels, tugboats, and towboats
  - Reporting, recordkeeping, and monitoring
- Corresponding low sulfur fuel regulation adopted at the same time

Rationale for Proposing Amendments

- About 10 percent of all goods movement emissions come from harbor craft
- Harbor craft are third highest impact on cancer risk from port activities
- Updated information shows increased emissions from some vessel categories
- Additional emission reductions are cost-effective
- Amendments will reduce emissions, add flexibility, provide consistency and clarity

Overview of Proposed Amendments

- Add in-use engine requirements for:
  - Crew and supply vessels
  - Barges and dredges
- Additional amendments
  - Provide flexibility
  - Clarify language

Crew and Supply Vessels

Crew and Supply Vessels

- Transport personnel and supplies to oil platforms, construction sites, and off-shore vessels
- Mainly operate in South Coast, Santa Barbara, and Ventura areas
- Account for about 20 percent of the Santa Barbara and Ventura CHC emissions
- Approximately 70 vessels with 240 engines
- Emit 33 tons per year (tpy) diesel PM and 670 tpy NOx statewide

Crew and Supply Vessels

- More emissions than we originally estimated
  - PM increased by about 75%
  - NOx increased by about 60%
- Annual emissions similar to towboats
- Proposing in-use engine requirements

Barge and Dredge Vessels

Barge and Dredge Vessels

- Barges
  - Flat bottomed vessels used to haul material and petroleum products, typically not self-propelled
  - Approximately 90 vessels with 320 engines
- Dredges
  - Designed to remove sediment from waterways
  - Approximately 20 vessels with 80 engines
- Emit 33 tpy diesel PM and 760 tpy NOx statewide

Barges and Dredges

- Large engines that operate close to shore
- Historically regulated under Portable Engine ATCM, CHC regulation, and local districts
- Proposing in-use engine requirements to provide statewide consistency
  - Brings these vessels under one regulation
  - Phased-in compliance schedules proposed similar to crew and supply vessels

Regulation Compliance and Timeline

- Crew and supply, barge, and dredge engine compliance on phased-in schedules
  - New certified engines replacing older, dirtier engines first
- Timeline overview
  - Begin replacing engines in 2011
  - Replace all Tier 0 engines 2011-2016
  - Replace all Tier 1 engines 2017-2022

Additional Amendments

Additional Flexibility

- Allow:
  - Use of U.S. EPA diesel fuel when traveling from out-of-state
  - Limited exemption for replacement engine after catastrophic engine failure
  - Use of off-road engines as auxiliary engines
  - “Swing Engines” to be considered part of a fleet
- Modify low-use exemption

Clarifying Changes

- Clarify:
  - Harbor craft vessel engines must comply with the harbor craft regulation
  - Reporting requirements and dates
  - Requirements for new ferry engines
  - Compliance extensions
- Definitions added/deleted

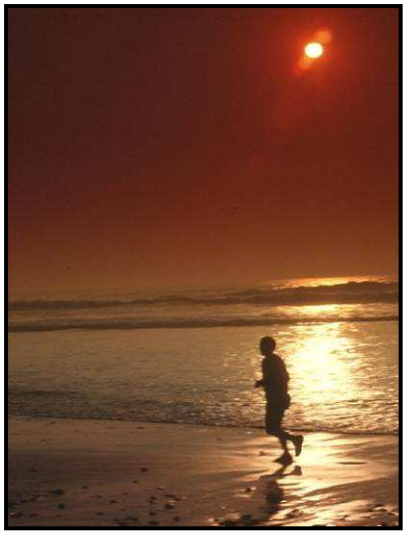
Statewide Emission Reductions

Emissions Reduced 2011 - 2025

	Diesel PM (tons)	NOx (tons)
Crew and Supply	185	2,000
Barge and Dredge	90	1,475
Total	275	3,475

Health Benefits

- Approximately a 10 percent reduction in harbor craft emissions
- Lower emissions result in reduced exposure to diesel PM and NOx, especially near ports
- Expect similar reductions in cancer and non-cancer impacts

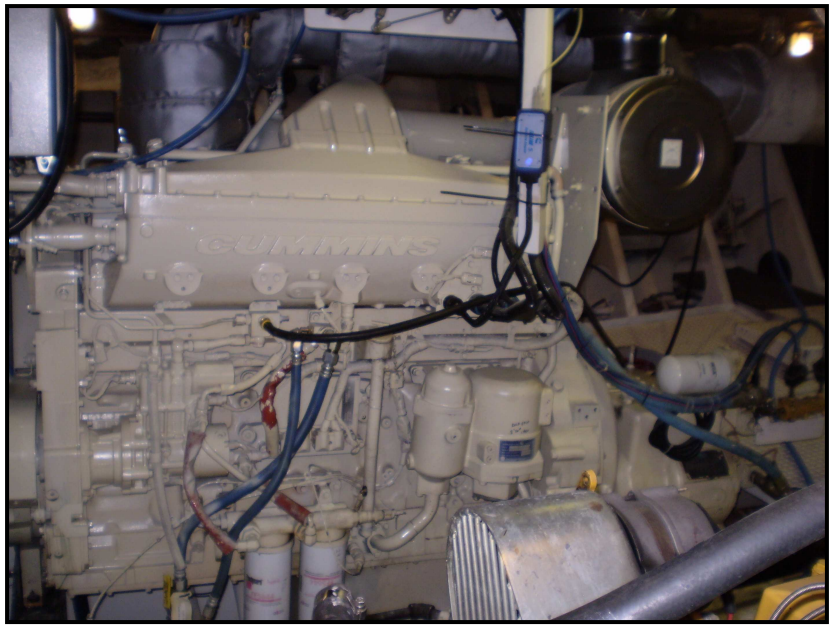


Estimated Costs

- Total cost of regulatory compliance over the life of the regulation
  - $15 million
- Cost-effectiveness:
  - $35 per pound PM
  - Consistent with other diesel PM regulations

Funding Opportunities for Early Compliance

- Carl Moyer Program
- Proposition 1B



Public Process to Develop Amendments

- Three public workshops
  - Shared draft concepts
  - Reviewed regulatory language
  - Presented cost estimates
- Multiple teleconferences and meetings with stakeholders
- Meetings with affected local air districts and updates to CAPCOA

Dredge Industry Concerns

- Subject to both state and district requirements
- Lack of consistency among districts
- Staff proposes industry/district/ARB committee to work on issue

Proposed 15 - Day Change

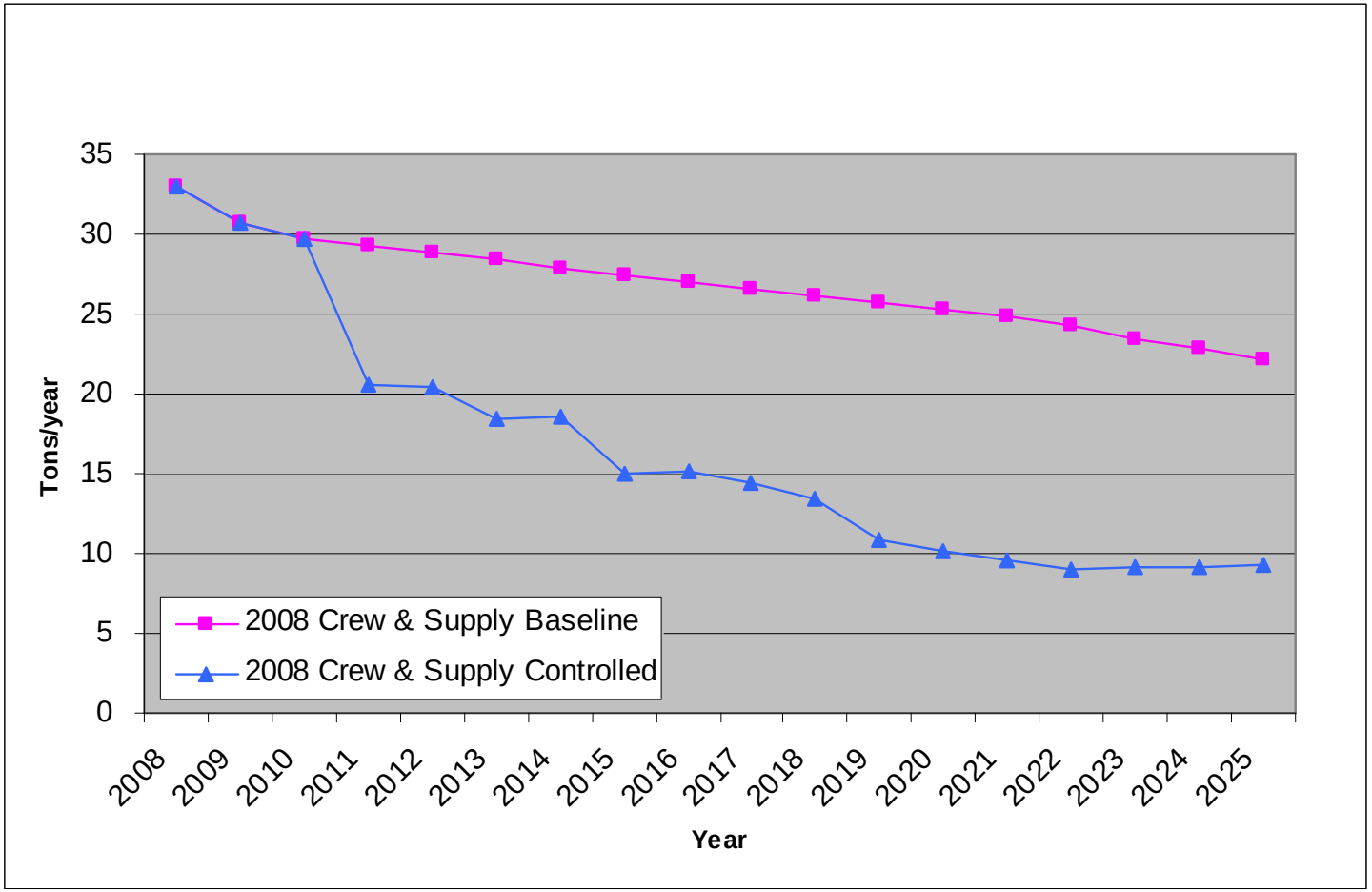
- Allow use of off-road (nonroad) engines to be used as propulsion engines on harbor craft vessels

Summary and Recommendation

- Proposed amendments necessary to:
  - Achieve emission reductions and health benefits
  - Provide statewide consistency
  - Give additional flexibility
  - Clarify regulation
- Additional emission reductions will make progress towards goals
- Recommendation:
  - Adopt amendments with proposed 15-day changes

Extra Slides

Projected Statewide Diesel PM Emissions for Crew and Supply Vessel Diesel-Fueled Engines



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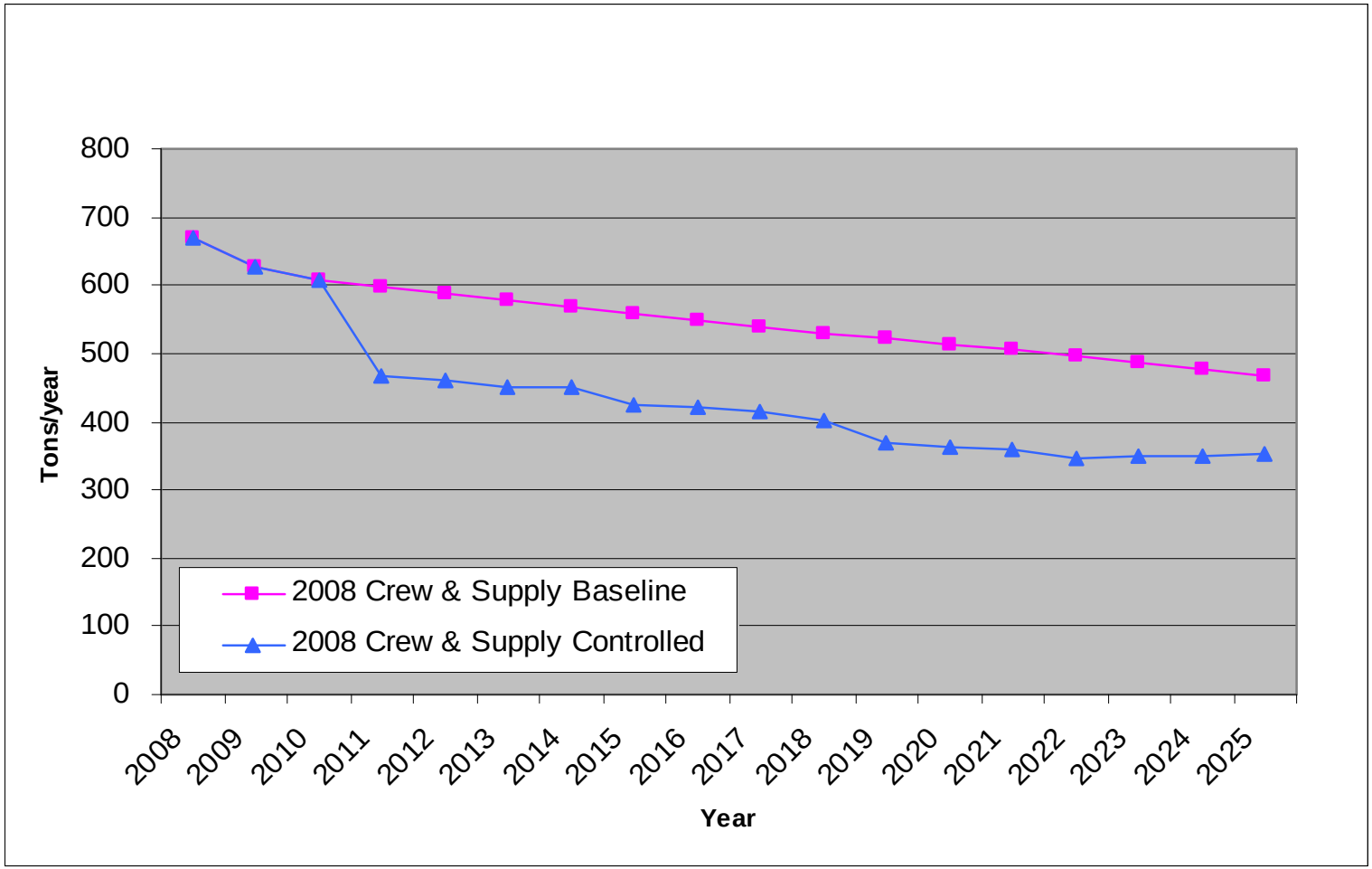
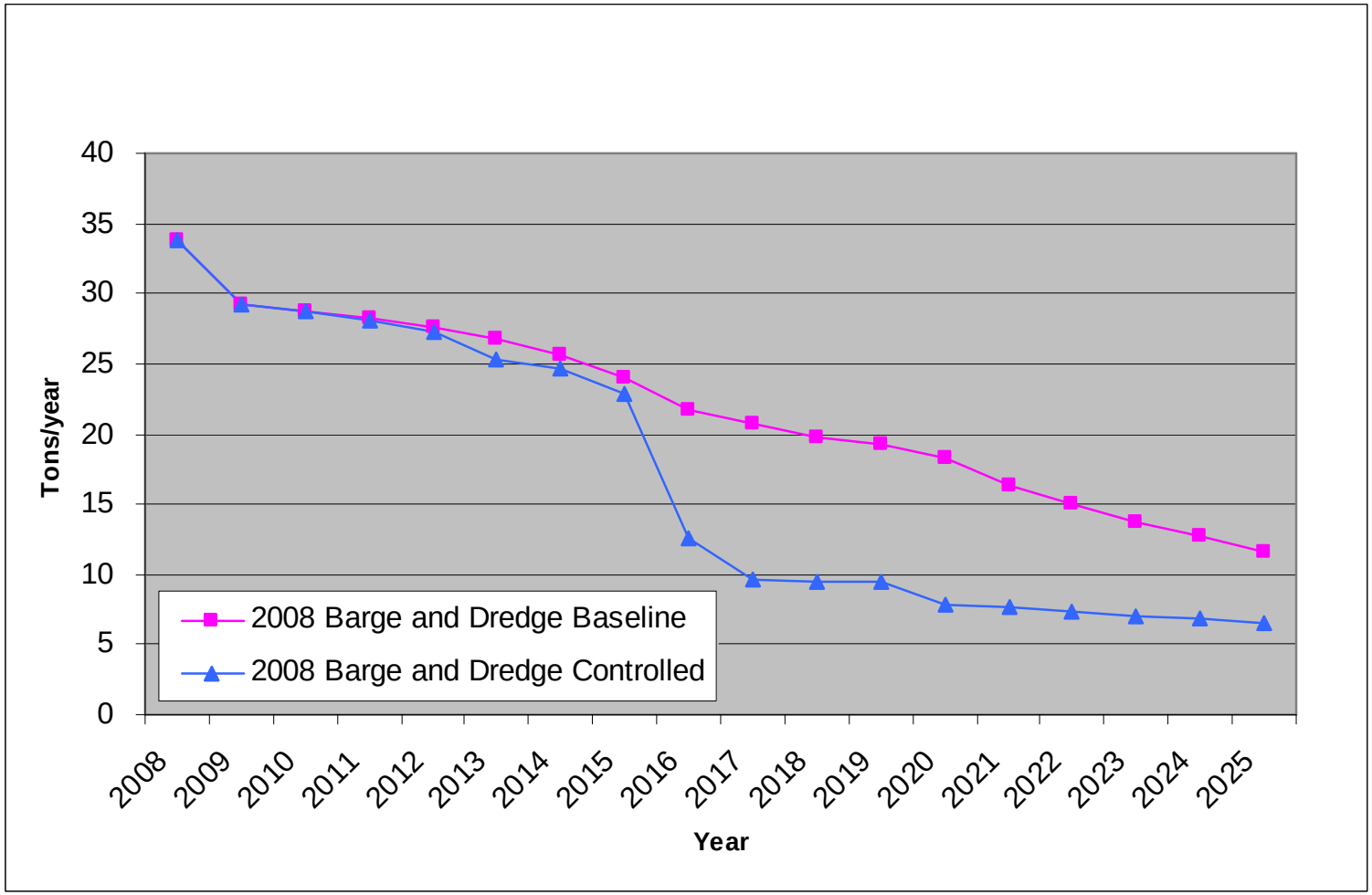


Projected Statewide Diesel PM Emissions for Barge and Dredge Vessel Diesel-Fueled Engines



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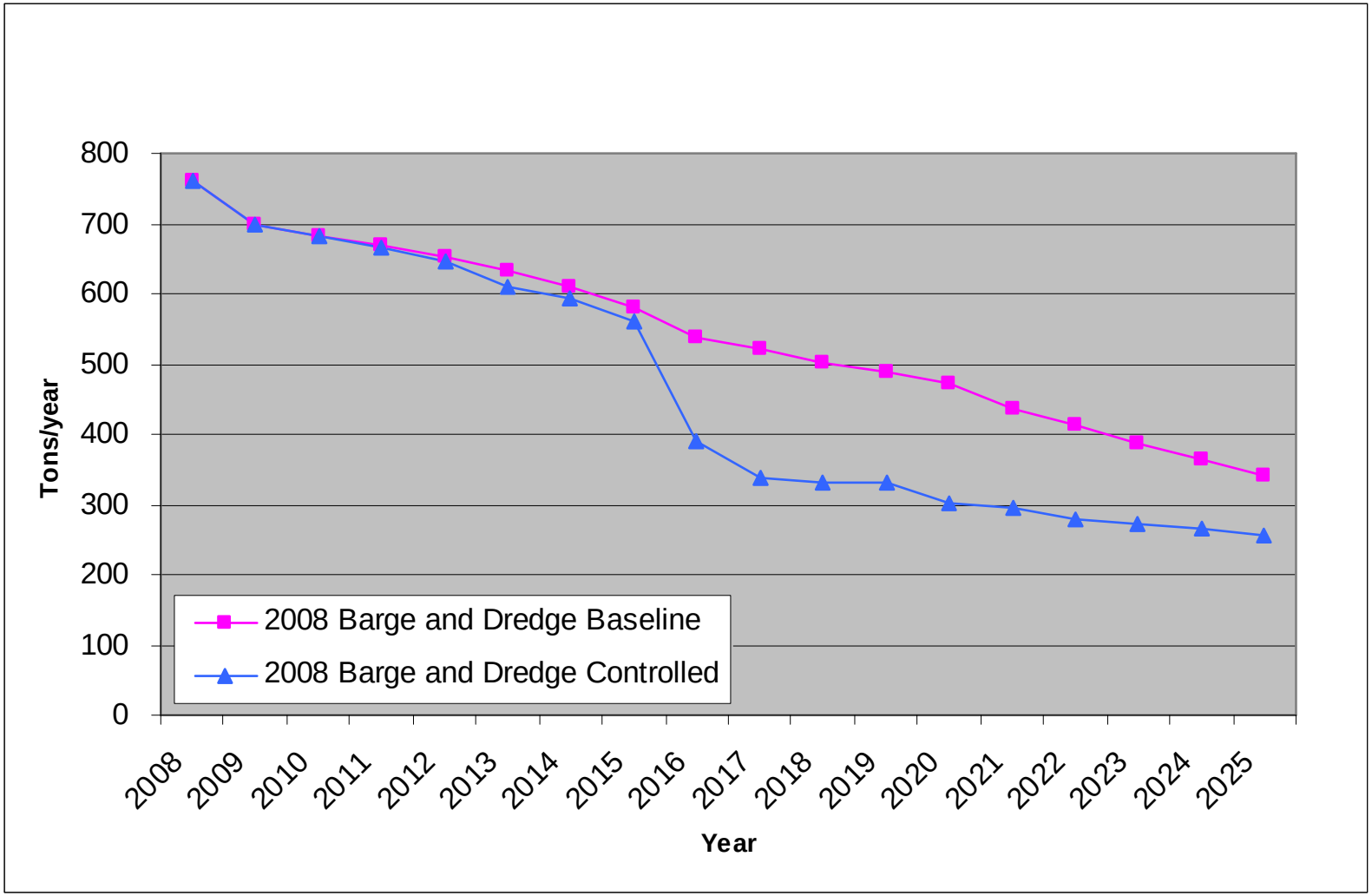
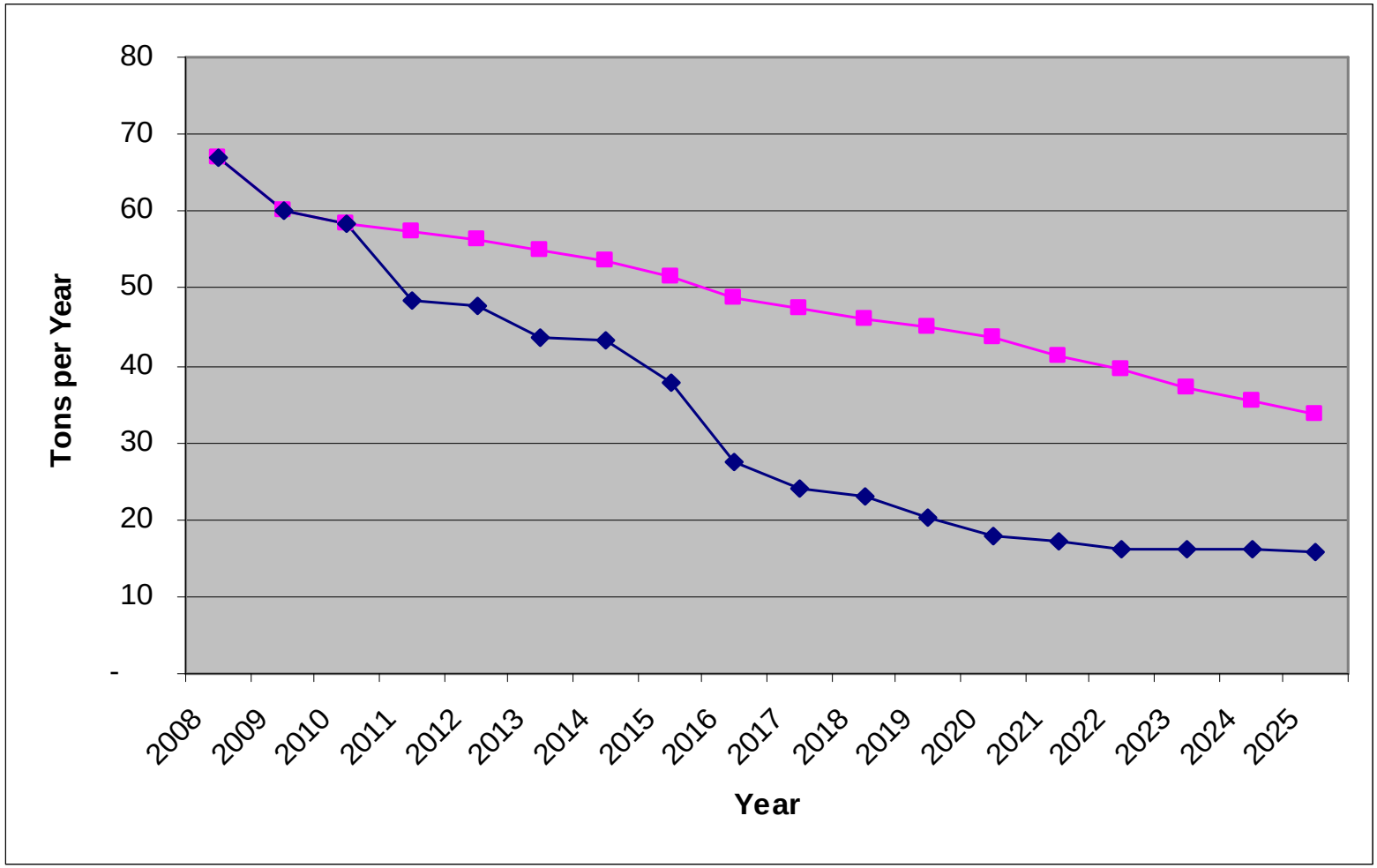


Projected Statewide PM Emissions for CNS and BND Vessel Engines



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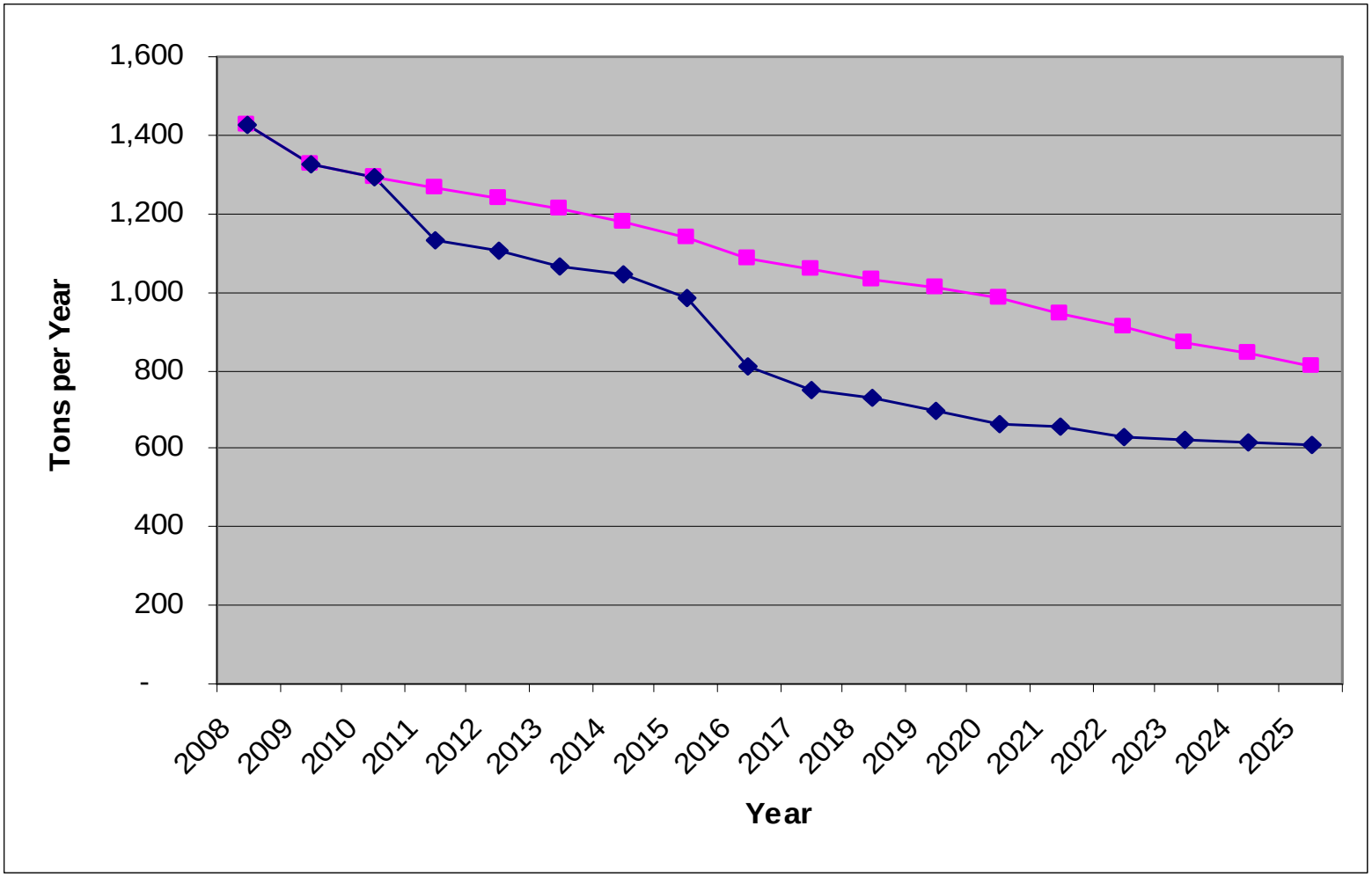

Proposed Compliance Dates for Engines on Crew and Supply Vessels Statewide

Engine Model Year	Total Annual Hours of Operation	Compliance Date
1985 and earlier	≥ 1500	12/31/2011
1985 and earlier	≥ 300 and < 1500	12/31/2012
1986 – 1995	≥ 1500	12/31/2013
1986 – 1995	≥ 300 and < 1500	12/31/2014
1996 – 2000	≥ 1500	12/31/2015
1996 – 2000	≥ 300 and < 1500	12/31/2016
2001 – 2002	≥ 300	12/31/2017
2003	≥ 300	12/31/2018
2004	≥ 300	12/31/2019
2005	≥ 300	12/31/2020
2006	≥ 300	12/31/2021
2007	≥ 300	12/31/2022

Compliance Dates for pre-Tier 1 and Tier 1 Engines on Dredge and Barge Vessels Statewide

Engine Model Year	Total Annual Hours of Operation	Compliance Date
1975 and earlier	≥80	12/31/2011
1976 -1980	≥80	12/31/2012
1981 - 1985	≥80	12/31/2013
1986-1990	≥80	12/31/2014
1991-1995	≥80	12/31/2015
1996-1999	≥80	12/31/2016
2000 -2001	≥80	12/31/2017
2002	≥80	12/31/2018
2003	≥80	12/31/2019
2004	≥80	12/31/2020
2005	≥80	12/31/2021
2006	≥80	12/312022